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THE QUANTITY-THEORY OF MONEY.

THE quantity-theory of money is simply an expression, with reference to a special case, of the general law that value is determined in the relation between demand and supply. Prices being nothing more or less than values expressed in terms of money, those who hold the quantity-theory merely point out a specific instance for the application of a principle which has been established by competent induction, and the applicability of which is not challenged in any other instance within the view of the political economist. It is not, therefore, for those who hold this theory to prove their case. It rests upon the critics of that theory to show some reason why a principle, admitted to be otherwise of universal application, should be suspected of failing at this point.

The cause of the incredulity which has attended the quantity-theory is found in the difficulty of defining the terms demand and supply, when used with reference to money. The elements of the case are necessarily complex and elusive. The demand for money arises from the fact that there is a certain amount of money-work to be done; that is, exchanging has, to a certain extent, to be effected in that community through the use of this agent. In the situation existing—the quantity of goods to be exchanged being such as it is, prices ruling as they have done, producers and consumers living at such distance from each other as may be the case, the habits of the people as to carrying and using money being what they are, the machinery of exchange being what it is—there is occasion for a certain exercise of the money-function in that community. The money-function cannot be exercised in a lower degree than is thus required without personal inconvenience and economic loss. Shall we say

that the demand for money is determined merely by the amount of goods to be exchanged? No. Many of these goods may conveniently be exchanged directly against each other in barter, or indirectly through the intervention of commercial and financial credit, without the use of money. Such goods do not constitute a factor in the demand for money. Even when we know the amount of goods which must be exchanged through the intervention of money, we have still to inquire how often each commodity may require to be thus exchanged. On the other hand, the supply of money is not determined solely in the number of money-pieces of a certain denomination or denominations available to do the money-work. We must also know the rapidity of circulation. "The nimble sixpence does the work of the slow shilling." In a community possessing in a high degree the agencies of transportation and transfer — railroads, parcel express, post, and telegraph — a given volume of money-pieces might conceivably do two or three times as much of the money-work as in a community more backward in the respects indicated. To resume, the demand for money and the supply of money are both quantities of two dimensions.

When the demand for and the supply of money are thus stated and explained, it is difficult to see how any economist can take exception to the proposition that, other conditions remaining the same, an increase in the quantity of money must raise prices and a decrease in the quantity of money must lower prices. Since money is actually exchanged for goods, since people do give for it that which they have earned by labor and abstinence and risk, it is clear that prices — that is, the value of money — must be fixed by a sufficient cause. It cannot be a matter of whim or a matter of accident. There must be some reason why the producer sells his goods for so much money, and not for more and not for less. There must be some competent force which compels him to give as

much as he does, which releases him from the necessity of giving more than he does. What is that force? In regard to all exchanges of goods for goods or goods for services, under all conditions and in all places, the answer universally accepted is, "Demand and supply." Some powerful reason must be shown for asserting that any other principle governs in the exchange of goods or services for money.

II.

In the March number of the *Journal of Political Economy* Miss Sarah McLean Hardy has an article entitled "The Quantity of Money and Prices, 1860-92: An Inductive Study," in which she takes up for examination the quantity-theory of money, reaching very disparaging results. Dr. Hardy starts out with characterizing the quantity-theory as abstract and hypothetical, and therefore requiring, prior to acceptance, to be submitted to inductive verification. She calls it "an *a priori* law," a "hypothetical, deductive law" needing to be compared with "observed facts," and speaks of it as an instance of "pure abstraction." Starting with such a view of the theory in questions, he finds it impossible to verify the theory inductively with any great degree of satisfaction. Now, I must take issue on this point at the outset. The principle that value is determined in the relation between supply and demand—that is, the quantity-theory *in general*—has been abundantly established by competent induction. The only hypothesis in the case of the quantity-theory *of money* is that demand and supply have the same dominion and potency here which they have in all other cases of exchange. It is assumed that a principle admitted to be otherwise of universal application can safely be applied to this particular instance, no reason why it should not be so applied having ever been

adduced. Since goods are sold for money and money is exchanged for goods, the advocate of that theory has a right, in the absence of any reason to the contrary, to take it for granted that the universal law of exchange governs here. This is all the hypothesis there is in the quantity-theory of money; and that assumption is no more violent than would be the assumption of a learned and skilled physicist, making observations in a region never before visited, that the law of gravity reigned there as elsewhere, and that the atmosphere of that place, as of other places, was composed of oxygen and nitrogen, with possibly a dash of argon.

But, while declining thus to concede that special inductive verification is necessary to establish the quantity-theory of money, in the absence of any ground for questioning the application here of the general principle governing exchange, one can have no reason for objecting to such an inquiry. What, then, is the scope of Dr. Hardy's investigation? In certain tables and diagrams she places in comparison: (1) the "volume of currency each year, from 1860 to 1892 inclusive; (2) prices, for the same period, according to an index number; (3) the transactions of the New York Clearing House; and (4), for the period of 1862 to 1878 inclusive, the value of gold in United States currency. It is from such a comparison that conclusions are derived unfavorable to the quantity-theory of money.

To begin with, it is to be regretted that Dr. Hardy has not made the currency table one of per capita, and not of aggregate, currency in circulation. During the thirty-three years — the traditional life of a human generation — covered by this table, population in the United States considerably more than doubled. Had the table given the figures of the per capita circulation, the effect upon the eye and the mind of the reader would have been very different. For instance, instead of the currency of 1890

standing to that of 1860 in the ratio of 328 to 100, the ratio would have been 164.8 to 100. In other words, the currency would have shown a per capita increase of only 64.8 per cent. instead of 228 per cent.,—a notable change, indeed! It is true, as Dr. Hardy says, there is no absolutely necessary relation between an increase of population and an increase in those trade transactions which require the use of money;* but it stands to reason, most conspicuously, that, except for a revolution in other conditions, to double the population of the country is to require some increase, and a considerable increase, in the demand for money, whether that increase shall be exactly 100 per cent. or less or more. It is true that a comparative per capita table of monetary circulation would still contain its own elements of doubt and difficulty; but this seems no good reason for introducing an additional and altogether unnecessary element of confusion and error. If Dr. Hardy allowed for the growth of population, she would manifestly come much nearer the truth than by not allowing for it. The assumption that a twofold population would require a twofold circulation, clearly may be, in its own degree, erroneous; but the assumption that a twofold population, spread over a vastly greater area, would not require any more currency is certain to contain a larger amount of error. In a quantitative investigation the difference between a 64.8 per cent. increase and a 228 per cent. increase is not immaterial.

Yet, even if we correct these tables by introducing the per capita element, it still remains true, as Dr. Hardy has stated, that, in general, while the "volume of currency" has increased, and increased largely since 1860, prices have declined, or at least have declined since 1865. It

* In illustrating this, Dr. Hardy says: "An increase in population does not necessarily imply an increase in transactions, for it is a well-known fact that there are great differences in productive power among men. Compare, for example, two nations like China and the United States or Mexico and Holland" (p. 161). But in the case under consideration Dr. Hardy is not comparing two nations of different productive power.

is this result which leads Dr. Hardy to the conclusions: “(1) that that dogma, in its general theoretical form, is inapplicable as an explanation of this given set of actual conditions; (2) that, so far as it may be at all valid, its influence in determining the level of prices is of far less importance than is commonly supposed; (3) that prices, from 1861 to 1891, were fixed in the main by other causes than the quantity of that kind of money which was in circulation during those years.”

Now let us see just what it is which, in Dr. Hardy's opinion, justifies conclusions so important,—what statistical evidence is relied upon in thus cutting down the scope and validity of the quantity-theory of money. She compares the “volume of currency” with the average annual prices for a considerable term of years, and finds that, in general, in spite of a steady increase in the volume of currency, there has been a decrease, more or less intermittent and spasmodic, in prices. But is it sufficient to put together merely the volume of currency—that is, the supply of money—and the corresponding prices, without even attempting a quantitative statement of the demand for money? Dr. Hardy would appear to think that the quantity-theory of money is in effect this: that, if the actual quantity of money is increased, prices must rise; if the actual quantity of money is diminished, prices must fall. Now, no economist of reputation ever held such a theory, however loosely some may have written upon the subject. The quantity-theory of money, by its very statement, takes into account both the supply of money and the demand for money. Dr. Hardy's tables and diagrams do not refer to the latter element, even by so much as an interrogation-point. We have already seen that, in making the table of the “Volume of Currency” an aggregate and not a per capita table, Dr. Hardy threw out of consideration the influence of a population more than doubled during the period covered by the investigation. We now see that she does

not even give so much as a blank column to the demand for money,* although the demand for money is just as much a factor in determining prices as is the supply of money. Such an investigation can scarcely be deemed conclusive. Dr. Hardy shows that the volume of currency — *i.e.*, the supply of money — increased steadily and largely from 1860 to 1892. She has not shown that the demand for money did not, during the same period, increase even more rapidly, thus completely justifying the quantity-theory. According to that theory prices do not necessarily rise because the supply of money increases. Prices only rise when the supply of money increases relatively to the demand.

And right here let me take issue bluntly with the writers of the gold monometallist school generally, Mr. Wells, Mr. Horace White, Mr. Atkinson, Professor Sumner, and others, regarding their unverified assumption that it is in the nature of an advancing industrial civilization to require smaller and still smaller amounts of "the circulating medium." These writers are never tired of dilating upon the function of the bank and the clearing-house in saving the use of money. They descant upon the statistics, partial, fragmentary, and unreliable as they are, which show the comparatively small proportion of cash payments; and they meet every statement or assumption as to the importance of the money-supply with assertions

* Dr. Hardy says (pp. 157, 158) "According to the *a priori* law [*i.e.*, the quantity-theory] either the amount of currency should have decreased or prices should have risen. But neither of these events has taken place." Here is no recognition of a possible increase in the occasions for the use of money. Again, she says, referring to the fall of prices, 1865-92, accompanying an actual increase in the volume of currency "The quantity-theory, if operative at all, has been overbalanced or checked by some other stronger force or forces. Some disturbing causes have intervened to produce effects for which the quantity-theory can give no explanation, for the understanding of which it is very irrelevant" (p. 158). According to this, an increase in the demand for money, arising from a growth of population or a multiplication of commodities or changes in the habits of the people in regard to carrying and spending money, is "a disturbing cause," contravening the operation of the quantity-principle, instead of being an essential and necessary element in the determination of prices.

that the money-supply has really ceased to be of any practical consequence, as a result of the extension of credit-agencies and instruments.

Now, it is perfectly true that credit-agencies and instruments, in any high state of industrial civilization, effect an enormous saving in the use of money. But it is at the same time true that, in spite of all which credit-agencies and instruments can do, after the efficiency of banks and clearing-houses is exhausted, the whole tendency of modern civilization has been to increase the demand for actual money. At the beginning of the present century the people of the United States enjoyed a minimum of credit-agencies and instruments; and yet the volume of currency was, so far as we can make out from the incomplete statistics of circulation, less than one-half, per capita, what it was sixty years later, in spite of the fact that, during the interval, banks by the hundreds and clearing-houses in a half-score of cities had come into existence, transportation had been enormously quickened, the telegraph had been introduced, and in a hundred ways the efficiency of a given body of money had been increased. And to-day, thirty-five years later still, while credit-agencies and instruments have been enormously improved and entirely new means of communication, like the telephone, have been introduced, the people of the United States are using far more money than they did in 1860; and yet the sole sign of inflation — namely, rising prices — does not appear. The simple explanation is that the multiplication of commodities due to the increased facilities of production, the marvellous increase of travel, and changes in the habits of our people with respect to carrying and spending money, are continually creating a demand for a larger and still larger volume of actual money, in spite of improved agencies of exchange and rapidly multiplying instruments of credit.

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